



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,358	11/08/2001	Hisao Furukawa	053969-0132	5253
22428	7590	12/22/2004	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			STREGE, JOHN B	
			ART UNIT	PAPER NUMBER
			2625	

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/986,358

**Applicant(s)**

FURUKAWA, HISAO

**Examiner**

John B Strege

**Art Unit**

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-72 is/are pending in the application.
- 4a) Of the above claim(s) 8-33, 41-66 and 68-71 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 34-40, 67 and 72 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/8/01, 10/14/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Election/Restrictions***

Claims 8-33, 41-66, and 68-71 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 11/17/04.

Applicant recites that claims 1-7, 34-40, and 67 are readable on the elected species. Examiner further notes that claim 72 is also readable on the elected species and therefore will examine claims 1-7, 34-40, 67, and 72.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7, 34-40, 67 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roux article titled *Cooperative Analysis of Maps and Aerial Images for Urban Scene Description* (as cited in the IDS filed 10/14/04).

Claim 1 discloses, "a stereo image processing apparatus subjecting image data obtained from a flying object (airframe) to stereo matching processing to generate three-dimensional data, comprising: data correcting means for correcting erroneous data to be corrected including at least noises and losses in said three-dimensional data by using information of external shape of buildings obtained from map data including said information of external shape."

In the conclusion section (section 6) Roux discloses a system where maps are first analyzed in order to obtain a structural description of the scene as well as information on the content of each urban block. This information is then used for the analysis of a disparity image generated with a stereo pair of aerial images.

Specifically Roux discloses generating a three-dimensional data disparity image using a stereo pair of aerial images (section 3 Disparity Image Generation, especially the first sentence, furthermore the left and right aerial images are seen in figure 7). A coarse disparity image is calculated, then this image is refined with a local analysis of the disparity for each urban block given by the map (first paragraph of section 3). The map for each urban block gives different feature information such as building information (section 2.2 Urban Blocks, especially the first paragraph). The map further provides information regarding the presence, the location, the size and the shape of the buildings (section 5.2 first paragraph). Roux further discloses detecting a 3D building description (section 5). He recites that one way of doing so is to analyze the disparity image inside each urban block given by the map (first paragraph of section 5.1). However using this technique the detection is sensible to the noise of the disparity image (last paragraph of section 5.1). Furthermore Roux states that an alternative method of detecting the 3D building description uses the map data (as discussed in section 2.2) superimposed on the disparity image (section 5.2, figure 16). Roux finally states that the detection is improved by combining the two approaches (section 5.3).

Roux does not explicitly disclose a data correcting means, however as stated does disclose an image refining means. Roux recites that noise is present in the coarse

Art Unit: 2625

disparity image (all of section 3.1). Then using the information of each urban block refinement uses a histogram of the disparity image to remove all intervals of the histogram with a surface less than 1% of the total surface of the histogram (second paragraph of section 3.2 Disparity image refinement). Since the refinement means is removing noise it is obvious that this is a data correcting means.

Claims 34 and 67 disclose similar limitations to claim 1, however claims 34 and 67 are method and computer readable medium claims. Thus the same arguments used for the rejection of claim 1 apply equally to the rejection of claims 34 and 67.

Regarding claims 2 and 35, Roux discloses a registration means for superimposing map data on the disparity data in order to select the most appropriate algorithm for the extraction of buildings in the stereo pair of images (section 2.14, as seen in figure 3). This permits the area to be set locally in urban blocks of the images. A histogram is used to obtain in statistic information of each area set and based on this histogram areas with a surface of less than 1% of the total surface are removed thus modifying the data (second paragraph of section 3.2).

Regarding claims 3-4, and 36-37, and 72 it is inherent that the image data and the map data of Roux is stored.

Regarding claims 5, and 38 as discussed in section 5 Roux discloses superimposing (comparing) the map data and the disparity image (refined as disclosed in section 3) to create a 3D building description (seen in figure 19). The 3D building description can be read as the modified map data.

Regarding claims 6-7 and 39-40 Roux discloses satellite or aerial images (first paragraph of the introduction).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPN 4,984,279 discloses image processing and map production systems.

USPN 5,995,681 discloses the adjustment of sensor geometry model parameters using digital imagery co-registration process to reduce errors in digital imagery geolocation data (see especially figure 2).

USPN 6,587,601 discloses performing geo-spatial registration using a euclidean representation (see especially figure 1).

USPN 5,864,632 discloses a map editing device for assisting updating of a three-dimensional digital map.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John B Strege whose telephone number is (703) 305-8679. The examiner can normally be reached on Monday-Friday between the hours of 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2625

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JS



BHAVESH M. MENTA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600